

Remarks/Arguments:

Summary of Office Action and Response

Claims 1-28 are pending in this application. Claims 1-28 are rejected.

Claims 1-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by EP 0801934 A2 ("Boyle"). Claims 1-28 stand rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent No. 5,800,515 ("Nadal"). Applicants respectfully traverse these rejections and submit that the currently pending claims are patentable over the art of record for at least the reasons set forth below.

Features of Claim 1

Applicants' invention, as recited by independent claim 1, includes features (emphasized by underlining in the excerpt of claim 1 below) which are neither disclosed nor suggested by the art of record, namely:

...a plurality of circumferential hoops disposed in a helical succession...each of said hoops comprising a helical arrangement of elements defined by a successive series of substantially straight struts...

at least one connecting member wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.....(emphasis added).

Applicants' claimed device is an intraluminal stent comprised of zig-zag or sinusoidal wire hoops. According to claim 1, this embodiment includes, as one of its features, hoops disposed in a helical succession where each hoop comprises a helical arrangement of elements. The stent also includes the feature of "at least one connecting member comprising one of (a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or (b) a separate bridging member...."

Response to Prior Art Rejection of Claim 1 - Based on Boyle

With regard to the § 102(b) rejection of independent claim 1 based on Boyle, the Office Action rejects the claim by stating that Boyle discloses "a tubular stent (10) having struts (250, 255), wherein the struts are welded together, apex sections (60) that point in the first direction axially overlapping the apex sections (65) that point in the second direction as is claimed (figures 1-7, column 4 lines 6-35 and column 7 lines 7-53)."

Applicants respectfully traverse this rejection. According to Boyle, "[w]elding off-apex provides a greater area on which to weld because *the curve* is not as sharp at that point and provides a surface area of greater contact." (emphasis added) (Col. 6, lines 12-14). Unlike the present invention, the connection between adjoining waves in Boyle is located "such that waveform sections align off-peak 50 to off-valley 55" at the off-apex point, as shown in Figure 7. (Col. 6, lines 10-14). The present invention, on the other hand, claims the feature of having a "direct connection between a *linear portion* of the first strut that lies side by side with a *linear portion* of the second strut...." (emphasis added). Thus, the present invention differs from Boyle by directly connecting adjacent hoops between linear portions of struts, as opposed to Boyle which connects adjoining waves at curved portions of the waves.

Applicants also note that the adjoining waves in Boyle are connected off-peak to off-valley by welding. Boyle, therefore, does not teach, disclose or suggest connecting adjoining waves by utilizing a separate bridging member, which is a feature of Applicants' claim 1.

Applicants contend, therefore, that independent claim 1 is patentable over Boyle. Claims 2-13 are also patentable over Boyle at least for the same reasons that claim 1, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

Response to Prior Art Rejection of Claim 1 - Based on Nadel

With regard to the § 102(e) rejection based on Nadel, the Office Action rejects independent claim 1 based on the assertion that Nadel discloses "an intraluminal stent having a plurality of hoops (13a, 15a, 17a, 19a) and an apex having two strut [sic] wherein one strut (9) is longer than the second strut (7) as is claimed (figures 5, 8 and 11, column 3 lines 32-67, column 4 lines 1-67, column 5 lines 1-35 and column 6 lines 18-38).

Applicants respectfully traverse this rejection. Applicants' claim 1 recites "a plurality of circumferential hoops disposed in a helical succession" and further that each of the hoops comprises "a helical arrangement of elements." Nadel does not disclose or suggest helically wound stents. In fact, in the Summary Of The Invention, Nadel admits that when the device is implanted the outward radial force is "distributed radially relative to the axis of the prosthesis" and in the very next sentence expressly states, "This is not the case of prostheses formed by helical winding." (Col. 2, lines 47-52). Thus, not only does Nadel not disclose or suggest a helically wound stent, but specifically states that its invention is not of the type formed by helical winding.

Applicants contend, therefore, that independent claim 1 is patentable over Nadel. Claims 2-13 are also patentable over Nadel at least for the same reasons that claim 1, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

Features of Claim 14

Applicants' invention, as recited by independent claim 14, includes features (emphasized by underlining in the copy of claim 14 below) which are neither disclosed nor suggested by the art of record, namely:

An intraluminal stent **comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections** alternately pointing in opposite axial directions, wherein at least one apex section comprises two struts attached thereto **with one strut longer than the other strut**.....(emphasis added).

Applicants' claimed device, as claimed in claim 14, is an intraluminal stent having the feature of substantially straight struts that define a helical arrangement of elements that are connected by apex sections. In this embodiment, the apex section has two struts with one strut longer than the other.

Response to Prior Art Rejection of Claim 14 - Based on Boyle

With regard to the § 102(b) rejection based on Boyle, the Office Action rejects independent claim 14 for the same reasons as claim 1. Applicants respectfully traverses this rejection. As discussed with regard to claim 1, Boyle discloses that the "wire elements 40a-i are uniformly spaced along the cylinder and the peaks 60 and valleys 65 are uniformly spaced around the cylinder." (Column 4, lines 25-27). "[S]tamping, brazing, adhesive bonding, biocompatible [sic] connection or welding" are used in order to connect "the off-peak 50...with the adjacent off-valley 55 as seen in Fig. 7." (Column 6, lines 56-58, column 7, lines 1-3).

The present invention as claimed in claim 14, however, includes at least one apex section comprising two struts with one strut longer than the other. This feature is neither disclosed nor suggested in Boyle, which discloses uniformly spaced peaks and valleys of adjacent waves that are attached by welding. Having two struts, in which one is longer than the other, is a feature which may lead to an overlap from one wave to the next, which is contrary to Boyle, which states "[i]t is an object of the invention....to reduce the likelihood of stent wire overlap during stent expansion" that occurs when using "[c]urrent *continuous* wire sinusoidal waveform stents." (emphasis added). (Column 3, lines 15-22). Therefore, Boyle discloses attaching the separate adjacent waves at off-peaks and off-valleys rather than using an elongated strut to make the connection. Thus, Boyle does not teach, disclose or suggest an apex section comprising two struts with one strut longer than the other strut because the function of the longer strut in connecting the adjacent waves is not required in Boyle.

Applicants contend, therefore, that independent claim 14 is patentable over Boyle. Claims 15-24 are also patentable over Boyle at least for the same reasons that claim 14, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

Response to Prior Art Rejection of Claim 14 - Based on Nadal

As discussed with respect to the rejection of claim 1 based on Nadel, claim 14 also includes a stent "comprising a helical arrangement of elements...." Therefore, based on the same reasons as stated for claim 1, claim 14 is also clearly patentable over Nadal.

Applicants contend, therefore, that independent claim 14 is patentable over Nadal. Claims 15-24 are also patentable over Nadal at least for the same reasons that claim 1, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

Response to Prior Art Rejection of Claim 25 - Based on Nadal

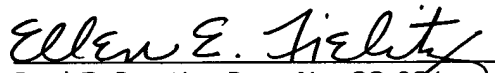
As discussed with respect to the rejection of claim 1 based on Nadel, claim 25 also includes a stent "comprising a helical arrangement of elements...." Therefore, based on the same reasons as stated for claim 1, claim 25 is also clearly patentable over Nadal.

Applicants contend, therefore, that independent claim 25 is patentable over Nadal. Claims 26-28 are also patentable over Nadal at least for the same reasons that claim 25, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

Conclusion

For all of the above reasons, Applicants respectfully submit that the rejections under 35 U.S.C. § 102(b) and § 102(e) should all be withdrawn and all of the pending claims 1-28 should be allowed.

Respectfully submitted,


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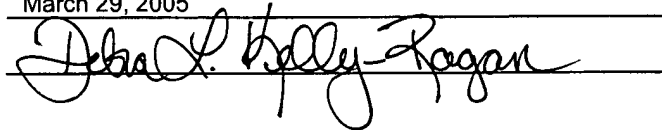
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